

# NASA TECH BRIEF



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## Quality Control Criteria for Acceptance Testing of Cross-Wire Welds

An investigation was carried out to establish visual inspection criteria for assuring the metallurgical integrity of spot welds joining nickel leads and nickel ribbon in a 90-degree cross-wire configuration. Quality control procedures that have been used for acceptance testing of such welds appear to be unduly complex and costly, and often result in the rejection of satisfactory units.

The results of the investigation indicate that there is sufficient correlation between weld strength and principally two visually observable and easily measurable characteristics to serve as criteria for acceptance testing of the cross-wire welds. The first of these characteristics, "expulsion", is the percentage of the total distance around a welded joint in which the width of the expelled weld material exceeds one mil. The other characteristic, "embedment", is the distance that the lead and ribbon are forced together (by heat and pressure) during welding.

### Notes:

1. Although this investigation was carried out on gold-plated nickel leads (16 to 32 mils in diameter) and bare (10×20 mil) nickel ribbons, it is believed that the results obtained will apply to bare nickel-to-nickel connections spot-welded under controlled production conditions.
2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
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Houston, Texas 77058  
Reference: B66-10587

### Patent status:

No patent action is contemplated by NASA.

Source: Russel D. Bryant  
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